

## CLAIMS

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A scanning probe microscope comprising:  
a cantilever;  
a light-emitting section; and  
a light-receiving section;  
the light-emitting section comprising a light emitting element and an input waveguide;  
wherein the input waveguide irradiates light from the light-emitting section towards the surface of the cantilever, the light receiving section comprising an output waveguide and a light-receiving element, and the output waveguide guides light reflected by the surface towards the light-receiving element.
2. The scanning probe microscope as disclosed in claim 1, wherein the input waveguide and the output waveguide are both made of optical fiber.
3. The scanning probe microscope as disclosed in either one of claim 1 or claim 2, wherein the output waveguide is made of a plurality of optical fibers.
4. The scanning probe microscope as disclosed in claim 3, wherein substantially spherical-shaped lenses for focusing light reflected from the cantilever onto the plurality of optical fibers are arranged at the ends of the plurality of optical fibers, and each set of lenses are taken to have substantially flat facing surfaces and be next to each other.
5. The scanning probe microscope as disclosed in any one of claims 1 to 4, wherein a tip probe is fitted at an end of the cantilever.
6. The scanning probe microscope as disclosed in any one of claims 1 to 5, wherein the light-emitting element is a laser diode.
7. The scanning probe microscope as disclosed in any one of claims 1 to 6, wherein the light-receiving element is a photodiode.